

# Semiclassical wormholes with a smooth throat

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## Abstract

We propose a procedure for calculating heat kernel coefficients and use it to derive the expression for any heat kernel coefficient  $B_i$  for an arbitrary profile of the throat. We give an explicit form of these coefficients up to  $B_3$ . We study domains of possible existence of wormholes for different values of the throat length-to-radius ratio and a nonminimal coupling constant.

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## Keywords

Quantum field theory in curved space-time, Wormholes, Zero point energy, Zeta function